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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
1998 Biennial Regulatory Review -- Spectrum Aggregation Limits for Wireless Telecommunications Carriers	)	WT Docket No. 98-205
	)	
Cellular Telecommunications Industry Association's Petition for Forbearance From the 45 MHz CMRS Spectrum Cap	)	
	)	
Amendment of Parts 20 and 24 of the Commission's Rules -- Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap	)	WT Docket No. 96-59
	)	
Implementation of Sections 3(n) and 332 of the Communications Act	)	GN Docket No. 93-252
	)	
Regulatory Treatment of Mobile Services	)	

COMMENTS OF GTE

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COMMENTS OF GTE

GTE Service Corporation and its below-listed affiliates[1] ("GTE") respectfully submit these comments in response to the Notice of Proposed Rulemaking ("*Notice*") adopted by the Commission on November 19, 1998, in the above-captioned

[1] GTE Alaska, Incorporated, GTE Arkansas Incorporated, GTE California Incorporated, GTE Florida Incorporated, GTE Hawaiian Telephone Company Incorporated, The Micronesian Telecommunications Corporation, GTE Midwest Incorporated, GTE North Incorporated, GTE Northwest Incorporated, GTE South Incorporated, GTE Southwest Incorporated, Contel of Minnesota, Inc., GTE West Coast Incorporated, and Contel of the South, Inc., GTE Communications Corporation, and GTE Wireless Incorporated.

proceeding.[2] As the *Notice* reflects, rapidly evolving market conditions in the commercial mobile radio service ("CMRS") industry warrant a fresh look at the existing 45 MHz spectrum cap. GTE believes that the best balance between safeguards against anti-competitive conduct and the cost of unnecessary regulatory constraints can be struck in the following fashion: (1) eliminate the CMRS spectrum cap; (2) consider interim retention of the cellular cross-block restrictions; (3) rely upon antitrust enforcement mechanisms to address anti-competitive issues; and (4) monitor the marketplace to evaluate whether additional spectrum is needed to facilitate development of future advanced services. For the reasons documented below, this approach would remove regulatory barriers to the deployment of advanced and efficient CMRS offerings while providing ample pro-competitive safeguards.

I. EXECUTIVE SUMMARY

The CMRS spectrum cap was adopted in 1994 to discourage anti-competitive behavior and prevent excessive concentration of licenses.[3] In any given geographic area, the cap limits to 45 MHz the total amount of combined broadband PCS, cellular, and specialized mobile radio ("SMR") service spectrum that an entity with attributable interests may hold.[4] In light of competitive developments since adoption of the cap and

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[2] *1998 Biennial Regulatory Review – Spectrum Aggregation Limits for Wireless Telecommunications Carriers,* FCC 98-308 (rel. Dec. 10, 1998) ("*Notice*").

[3] *Implementation of Sections 3(n) and 332 of the Communications Act*, 9 FCC Rcd 7988, 8105 (1994) ("*CMRS Third Report and Order*").

[4] 47 C.F.R. § 20.6(a).

in view of its obligations under Section 11 of the Communications Act,[5] the Commission issued the *Notice* seeking comment on whether it should "retain, modify, or repeal the CMRS spectrum cap."[6]

In the *Notice*, the Commission attempts to fashion forward-looking spectrum policies that will promote continued CMRS progress into the twenty-first century. As part of that ongoing process, interested parties have been asked to assess the effects of the current 45 MHz spectrum cap upon competition and consumers. In particular, the *Notice* highlights the goal of crafting policies that would prevent anti-competitive concentration or collusion within the industry while removing artificial regulatory barriers to publicly beneficial innovations, efficiencies, and economies.[7]

The CMRS marketplace has changed drastically since adoption of the spectrum cap in 1994. The amount of licensed spectrum available for CMRS providers has nearly quadrupled, the transition from analog to digital technology has rapidly progressed, and the number of providers has increased dramatically. This rapid expansion of available capacity, technology, and the number of service providers has produced vigorous competition in the CMRS marketplace. In addition to its readily

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[5] *Notice,* ¶ 11. *See also* 47 U.S.C. § 161. Section 11 requires the Commission to review the regulations applicable to providers of telecommunications services to "determine whether any such regulation is no longer necessary in the public interest as the result of meaningful economic competition" between telecommunications service providers. The statute directs the Commission to "repeal or modify any regulation it determines . . . no longer necessary in the public interest" in accordance with this review. *Id.*

[6] *Notice,* ¶ 31.

[7] *Id.,* ¶ 5.

identifiable wireless rivals, the CMRS market also is facing competitive challenges from a variety of alternative service providers such as mobile satellite service ("MSS") licensees, local multipoint distribution service ("LMDS") licensees, and other wireless systems. This market transformation requires a similarly bold modification of the Commission's regulatory approach to spectrum management. Today's market realities simply do not square with yesterday's spectrum cap regime.

The CMRS spectrum cap is no longer necessary to guard against anti-competitive conduct. Indeed, the wireless market has achieved the Commission's stated objective: competition, not regulation, now prevents anti-competitive or collusive conduct. More specifically, the potential for such behavior in the absence of the cap is minuscule at best for several fundamental reasons:

- The drive for nationwide CMRS footprints and emergence of nationwide pricing plans obviate concerns about the emergence of local concentration or anti-competitive price increases;
- Capacity in CMRS markets is a function not only of spectrum but also of equipment, with the latter being outside the control of any carrier or group of carriers and capacity-expanding equipment options available to all market participants;
- Under present demand conditions, a single 10 MHz carrier in a given market would effectively prevent anti-competitive conduct by other carriers because it could accommodate most of the voice traffic;
- Declining barriers to entry undermine the ability to monopolize or collude in any event;
- The lasting "durable" nature of the spectrum resource creates constant competitive alternatives because even after one carrier exits, its spectrum can be acquired by another competitor; and
- Warehousing of spectrum is not feasible due to high opportunity costs and vigorous competition.

In addition to outliving its usefulness in creating a competitive marketplace, the CMRS spectrum cap could actually injure the public interest by impeding innovation, hindering carriers' ability to meet market demand, and preventing efficiency gains. As discussed in Section IV below, retention of the cap retards market growth and deprives the government, investors, and consumers of valuable information about the optimal spectrum size for advanced services by artificially limiting spectrum use. Indeed, there is significant evidence that greater quantities of spectrum than the 45 MHz limit will be necessary to offer third generation ("3G") wireless services and products. The cap also retards gains in efficiencies and economies by causing carriers and consumers to misallocate resources. Against this backdrop, retention of the CMRS spectrum cap does not make sense.

In light of the competitive pressures that would work against any anti-competitive behavior, tinkering with the cap through market-by-market relief or alteration of the cap's particulars would be inadequate. Modifications of this kind would do little to mitigate the harms caused by the artificial nature of the spectrum cap policy, including stifled innovation and artificially constrained consumer demand.

GTE believes the new CMRS marketplace can be made more innovative and competitive, while still maintaining a multi-level "safety valve" to protect against any concerns about the potential for anti-competitive conduct. First, as set out above, the CMRS spectrum cap should be eliminated. Second, the Commission may wish to retain the cellular cross-interest rule to alleviate concerns about the level of competitive options in markets where robust competition may not yet have arrived. Third, the FCC should rely on antitrust enforcement mechanisms to prevent anti-competitive conduct.

Fourth, the Commission should continue to monitor CMRS market developments to assess whether additional spectrum may be required in response to customer demand for more spectrum-consuming service offerings. This multi-level approach will remove artificial barriers to publicly beneficial innovations and advances while providing a safety net against the remote prospects of anti-competitive conduct or conditions.

II. THE CMRS MARKETPLACE HAS CHANGED DRAMATICALLY SINCE THE COMMISSION ADOPTED THE SPECTRUM CAP

The mobile services landscape has witnessed dramatic change since the Commission adopted the CMRS spectrum cap. In the intervening years, the amount of licensed CMRS spectrum has nearly quadrupled and new competitors are entering the marketplace at an unprecedented rate. The net result of these developments has been a substantial increase in the number of service providers, a downward trend in prices, and the emergence of nationwide and regional CMRS footprints characterized by single-rate and other innovative pricing plans.

In 1994, the CMRS marketplace was limited predominately to two analog cellular providers licensed per market, each with 25 MHz of spectrum. Market penetration for such services remained relatively low with approximately one out of ten American consumers subscribing to cellular service.[8] Broadband PCS licenses had not yet been issued and SMR systems consisted primarily of analog dispatch providers.[9]

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[8] *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993: Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services,* 10 FCC Rcd 8844, at 8846 n.7, 8848, and 8874 Table 1 ("*First CMRS Competition Report*"). At that time, industry estimates of CMRS subscribership approached 25 million persons, representing a market penetration of

(Continued...)

Since that time, a number of marketplace and technological developments have fundamentally transformed the CMRS industry. First, the Commission completed the auction of 120 MHz of broadband PCS spectrum in a total of 51 Major Trading Areas ("MTAs") and 493 Basic Trading Areas ("BTAs"), resulting in the issuance of six new licenses in each market area.[10] Second, the Commission also held auctions for 10 MHz blocks of 800 MHz SMR spectrum,[11] which has allowed Nextel Communications, Inc. ("Nextel") to emerge as a competitor to cellular and broadband PCS offerings.[12] The third major development is the general shift of wireless networks from analog to digital technology platforms. The use of digital technology offers significant capacity gains, allowing carriers to serve more subscribers and to transmit a wider range of services.[13]

As a result, today's CMRS marketplace is robustly competitive with numerous operators offering or soon to be offering a variety of mobile services to consumers throughout many areas of the nation. Americans today generally may select from a variety of service providers and service options, including digital and analog cellular,

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(...Continued)
slightly less than 10 percent of the total U.S. population. *Id.*

[9] *First CMRS Competition Report,* at 8855-57.

[10] *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993: Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 13 FCC Rcd 19746, 19780 ("*Third CMRS Competition Report*").

[11] *Id.* at 19756.

[12] *Id.* at 19786-87.

[13] *Id.* at 19754.

broadband PCS, and SMR services. According to the Commission's *Third CMRS Competition Report*, three or more mobile telephone providers serve markets representing 87 percent of the U.S. population,[14] and four or more carriers serve markets representing 68 percent of the U.S. population.[15] In addition, the Commission found that at least three mobile telephone providers are serving each of the 50 largest BTAs and 97 of the 100 largest BTAs.[16]

These CMRS carriers also face competition from new wireless services such as LMDS and MSS offerings. The Commission has specifically identified LMDS as a wireless competitive choice for consumers.[17] As expected, LMDS licensees are placing their initial focus on providing wireless voice and data services, especially wireless Internet access.[18] MSS licensees further add to the range of wireless competitive

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[14] *Id.* at 19768-69. According to the Commission's Report, 273 of 493 BTAs were served by three or more carriers. *Id.*

[15] *Id.* at 19768. The Commission noted that four or more carriers served 135 BTAs and reported that 71 BTAs have four providers, 51 BTAs have 5 providers and 13 BTAs have 6 providers. *Id.*

[16] *Id.* at 19751.

[17] *See Rulemaking To Amend Parts 1, 2, 21 and 25 Of the Commission's Rules To Redesignate the 27.5-29.5 GHz Frequency Band, To Reallocate the 29.5-30.0 GHz Frequency Band, To Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services,* 12 FCC Rcd 12545, 12621 (1997). ("*Rulemaking*"). LMDS is a fixed broadband point-to-point microwave service assigned a total of 1,300 megahertz of spectrum in the 25-28 GHz, 29 GHz, and 35 GHz frequency bands.

[18] *See What That New Tech Acronym Means,* Los Angeles Times, at D10 (Feb. 18, 1998). In addition, the Commission also has indicated that, "[i]t is expected that many [LMDS services] may be offered in the local telephony marketplace as an alternative to the wired telephone network." *See Rulemaking* at 12638.

alternatives. Analysts expect that the number of customers subscribing to MSS will increase to 20 million over the next ten years.[19]

In addition to the variety of service offerings, competition has resulted in reduced prices for consumers. The *Third CMRS Competition Report* explains that prices for mobile services have been decreasing steadily over time and have dropped approximately 25 percent overall from 1994 to 1997.[20] The data cited in the Commission's report also suggest that the mere presence of at least one PCS competitor in a market appears to have a substantial impact on cellular rates: in such markets, the Commission found that the average combined rate for cellular and PCS is at least 15 to 18 percent lower than the rates for cellular service in markets where no broadband PCS operator is present.[21] A recent analyst's report predicts continued declines in the price of mobile services based on broadband PCS discounts of 12 to 28 percent compared to cellular rivals.[22]

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[19] Inaugural Globalstar Launch Could Build Investor Confidence, *Satellite News* (Jan. 26, 1998).

[20] *Third CMRS Competition Report* at 19769-70.

[21] Further, two studies cited by the Commission suggest that PCS operators are pricing their services between 10 to 20 percent below prices for cellular service. *See Third CMRS Competition Report* at 19769 (citing The Yankee Group, Competition Begins to Have an Impact on Wireless Pricing, Yankee Watch: MobileFlash, April 18, 1997 at 1) (indicating prices 10 to 15 percent below cellular pricing) and citing Perry D. Walter & Christopher E. Jefferson, PCS Versus Cellular: A Quarterly Survey of Wireless Pricing in Markets Where PCS Operators Have Begun Service, the Robinson-Humphrey Company, LLC, Jan. 9, 1997, at 2).

[22] Yankee Group, *The Pricing Elasticity of Wireless: Building the Revenue Model* (Sept. 1998), at 1.

Finally, there is a growing drive toward nationwide service footprints and the availability of new and innovative nationwide and regional pricing plans.[23] AT&T Wireless, Sprint PCS, and Nextel have developed national service and pricing strategies that enable competition to develop beyond a local level.[24] All three carriers and others, such as Bell Atlantic, have some form of national or regional one-rate offerings that may include roaming and long-distance charges as part of a single rate, "minutes of use" package.[25]

These marketplace developments have occurred in step with tremendous growth in consumer demand for mobile service products. Americans today have come to expect and demand the ability to maintain constant access to family, co-workers, and information sources regardless of whether they are at home, in the office, or somewhere in between. As a result, the CMRS marketplace has become the focal point of recent industry developments, with an increasing range of communications providers seeking to include mobile capability in their portfolio or to offer an expanding

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[23] *See, e.g.*, Peter Elstrom, *A Cell Phone in Every Pocket? The Bidding War Over Airtouch Reflects the Explosive Growth in Wireless Calling*, Business Week, Jan. 18, 1999; Mike Mills, *A Widening World For Wireless*, The Washington Post, Jan. 8, 1998, at F1.

[24] *See, e.g.*, Mike Mills, *A Widening World For Wireless*, The Washington Post, Jan. 8, 1998, at F1; *British Firm Tops Bell Atlantic's Offer for AirTouch Communications*, The Atlanta J & Const., Jan. 6, 1999.

[25] *See* Mike Mills, *A Widening World For Wireless*, The Washington Post, Jan. 8, 1998, at F1; Yankee Group, Year End 1998 Wireless Industry Update: The Impact of All Inclusive Rates (December 1998) at 8 (describing the "all inclusive" plans of AT&T, Bell Atlantic Mobile, Sprint PCS, AirTouch, Omnipoint, Aerial, GTE, BellSouth PCS, and PrimeCo).

menu of mobile service options. For example, as recently as last week, Southwestern Bell Corporation ("SBC") announced plans to purchase the wireless division of Comcast Corp. to permit SBC to join the so-called "race . . . to provide national [wireless] coverage at affordable prices."[26] Some analysts predict that the British company Vodafone's recent announcement of plans to acquire AirTouch Communications Inc. may signal a trend toward the development of global wireless networks that will permit customers to be reached at a single mobile phone number anywhere in the world.[27]

III. THE SPECTRUM CAP IS NO LONGER NECESSARY OR APPROPRIATE TO PREVENT POTENTIAL ANTI-COMPETITIVE BEHAVIOR

In light of the rapid evolution of the CMRS market since 1994, a spectrum cap is no longer necessary or appropriate to prevent potential anti-competitive conduct. The multitude of carriers and services available to most consumers today has transformed the CMRS marketplace and would thwart any firm's effort to monopolize the market. In addition to the large number of providers and ample available spectrum, GTE's economic analysis shows that several structural attributes of the competitive CMRS marketplace make it irrational as an economic matter for a firm or group of firms to attempt to exert market power. GTE relies upon the economic analysis of two eminent telecommunications economists, Drs. J. Gregory Sidak and David J. Teece, to

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[26] Nicole Harris & Leslie Cawley, *SBC to Acquire Comcast Unit For $400 Million*, The Wall Street Journal, Jan. 21, 1999, at B6.

[27] *Id.*

demonstrate the economic impact of the Commission's spectrum cap policy.[28] Their findings in support of abolishing the cap are detailed in the attached Declaration. More specifically for the purposes of this Section, Drs. Sidak and Teece conclude that several fundamental CMRS market attributes serve as a check on anti-competitive conduct and mitigate the continued need for the spectrum cap:

National Providers Limit Carriers' Ability to Engage in Anti-Competitive Behavior. The emergence of carriers such as AT&T Wireless, Sprint PCS, and Nextel with nationwide service areas and pricing plans markedly restrains the ability of any one provider to engage in anti-competitive conduct in any local market. As the Sidak/Teece Declaration notes, the presence of nationwide service and pricing plans "substantially reduces (or eliminates) any concern that carriers would amass spectrum in a effort to extract monopoly rents."[29] With such national competitors in place, efforts by any one carrier to extract monopolistic charges would be irrational because "any unilateral price increases would induce the immediate exit of customers to the lower-priced nationwide carrier."[30]

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[28] Dr. Sidak is the F.K. Weyerhaeuser Fellow in Law and Economics at the American Enterprise Institute for Public Policy Research in Washington, D.C. Dr. Teece is a Professor at the University of California at Berkeley and a Principal at LECG, Inc. in Washington, DC. The Declaration contains a full recitation of Drs. Sidak's and Teece's credentials and qualifications. For citation purposes, the Declaration is referred to as the "Sidak/Teece Declaration."

[29] Sidak/Teece Declaration, ¶ 20.

[30] *Id.*, ¶ 21.

Capacity Is a Function of Both Spectrum and Equipment. To evaluate the likelihood that a firm could exert market power in the CMRS marketplace absent a spectrum cap, the Commission must look to the relevant measure of market power. Noting the advancements in wireless technology and improvements in the effective capacity of any particular amount of spectrum, Drs. Sidak and Teece suggest that such evaluation, assuming a constant level of capacity, should be based not on spectrum capacity alone, but rather on both spectrum and equipment.[31] For example, a carrier with less spectrum than its competitors could invest in additional cell sites to increase its overall capacity to serve end-users.[32]

Thus, a single firm seeking to monopolize a particular geographic area would have to dominate both the available supply of spectrum capacity and the related supply of capacity-expanding equipment. Given the substantial market capitalizations of wireless equipment manufacturers, Drs. Sidak and Teece conclude that, assuming current demand requirements, "[i]t is highly improbable that a single carrier, or even a cartel of carriers, could coordinate arrangements with all equipment providers so that a smaller rival in the same location could not augment its capacity through equipment upgrades."[33]

Spectrum Requirements for Effective Competition. The Sidak/Teece Declaration emphasizes that the amount of spectrum capacity any one provider must

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[31] *Id.*, ¶ 22.

[32] *Id.*

[33] *Id.*

have to compete effectively in the CMRS marketplace is also relevant in assessing the ability to exercise monopoly power.[34] Continued advancements in wireless technology since the development of the spectrum cap have increased the effective capacity of any particular amount of spectrum.[35] Based on this increased effective capacity, Sidak and Teece suggest that, with today's overall level of demand, one 10 MHz block of spectrum is "sufficient to provide a wireless provider with the ability to compete for voice service in almost all regions of the country."[36] Indeed, 10 MHz would certainly provide sufficient spectrum to compete effectively based on current market trends for the short-term future.

Drs. Sidak and Teece point to Nextel as a compelling example to support the conclusion that 10 MHz is sufficient spectrum capacity for a firm to be regarded as a likely competitor, at least with respect to voice services.[37] Nextel has become an effective competitor in the CMRS industry by operating with an "average of 14 MHz in each region which, for technological reasons, is roughly equivalent to a 10 MHz PCS block of spectrum."[38] Figure 2 in the Sidak/Teece Declaration indicates that Nextel's service footprint currently reaches "100 percent of the population in the ten largest

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[34] *Id.*, ¶ 23-26.

[35] *Id.*

[36] *Id.*, ¶ 26.

[37] *Id.*

[38] *Id.*, ¶ 25.

MSAs, 90 percent of the population in the fifty largest MSAs, and more than 81 percent of the population in the 100 largest MSAs."[39]

Accordingly, under current market and traffic conditions, a single carrier with 10 MHz of capacity significantly restrains the ability of other firms to exert market power. As Drs. Sidak and Teece explain, even a smaller firm may discipline other larger competitors in the market because it is "poised to absorb most of the larger firm's traffic due to the technological capabilities of spectrum management."[40]

While the 10 MHz carrier will be an effective competitor today, as discussed below and set forth in the Sidak/Teece Declaration, it is likely that the market will evolve in one of two ways: (1) the market will require a multitude of carriers to provide spectrum-intensive technologies and service bundles; or (2) the market will break into component niche parts, each accommodating discrete consumer needs.[41] In the latter case, a provider using 10 MHz of spectrum remains an effective competitor because consumers would be willing to use niche services even in competition with a more spectrum-intensive bundled or technologically advanced service. In the former case, these multiple spectrum-intensive providers may each require in excess of 45 MHz. To the extent that, at some future point, consumers no longer view the services offered by the 10 MHz carrier as substitutable (and thus an effective price disciplining agent) for

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[39] *Id.*, ¶ 26 & Figure 2.

[40] *Id.*, ¶ 24.

[41] As set forth in Section IV, it is clear that evolving technologies and markets make it inefficient for at least some carriers to be limited by the 45 MHz cap.

those offered by its spectrum-intensive competitors, the Commission may need to reevaluate its CMRS spectrum allocation.[42] In the interim, lifting the cap will allow markets and innovations to evolve most efficiently, while the existence of any single 10 MHz competitor will prevent anti-competitive behavior.

Declining Entry Barriers. Drs. Sidak and Teece also emphasize that declining barriers to entry prevent the exercise of market power.[43] In the context of the CMRS marketplace, these entry requirements include spectrum capacity, capital, and access to tower sites. As noted above, the developments in transmission capacity result in spectrum requirements that are "lower relative to the total amount of spectrum available."[44] In addition, Drs. Sidak and Teece explain that, while the cost of building wireless systems "to use the available spectrum are not small, technological progress is reducing the total cost of such systems."[45] Indeed, the incremental cost of cell sites and tower siting are both on the decline.[46] These cost factors, combined with reasonable access to capital, have steadily reduced barriers to entry, thereby deterring potentially monopolistic practices.[47]

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[42] As set forth in Section VI, the market monitoring role for the FCC is part of GTE's four-part pro-competition, pro-innovation approach to CMRS spectrum policy.

[43] *Id.*, ¶ 27.

[44] *Id.*

[45] *Id.*, ¶¶ 28-29.

[46] *Id.*

[47] *Id.*, ¶ 29.

The Nature of Spectrum as a Durable Resource. The Sidak/Teece Declaration explains that the unilateral exercise of market power is limited by the "durable" nature of spectrum -- *i.e.*, the fact that spectrum remains intact and available for use, even after a competitor exits the marketplace. According to Drs. Sidak and Teece, the durable nature of spectrum means that, for example, even if predatory pricing drove a rival firm into bankruptcy, "the spectrum of that carrier would remain intact, ready for another firm to buy the capacity at a distress-sale price and immediately undercut the carrier's noncompetitive prices."[48] This notion casts substantial doubt on concerns that a competitor could obtain market power through predatory pricing in an attempt to drive off its rivals. Significantly, the Commission embraced this skepticism toward the viability of predation theories in the context of ILEC pricing of fiber facilities to inter-exchange carriers under Section 272.[49] Drs. Sidak and Teece state that, "[i]f the argument is true for fiber capacity, then it holds true with even greater force for a durable resource such as spectrum."[50]

Warehousing is Not an Economically Appealing Strategy. Lastly, the CMRS market is also structurally resistant to anti-competitive behavior because of the high opportunity costs associated with spectrum warehousing.[51] As set out above, spectrum and equipment are each vital inputs for CMRS providers. Thus, any warehousing

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[48] *Id.*, ¶ 30.

[49] *See Access Charge Reform Order,* 12 FCC Rcd 15982, 16103 (1997).

[50] Sidak/Teece Declaration, ¶ 30.

[51] *Id.*, ¶ 31.

strategy standing alone would not be sufficient to corner the marketplace.[52] In addition, a rational carrier will always attempt to allocate resources to their most efficient use. An anti-competitive carrier attempting to monopolize the CMRS market will have to acquire vast amounts of spectrum in the target market. However, virtually by definition, this carrier will not have a productive use for this additional spectrum; rather, the acquisition is only productive for the anti-competitive carrier if that carrier is effective in acquiring sufficient amounts of spectrum, limiting availability of equipment, utilizing predatory pricing, driving competitors from the market, and then extracting monopoly rents for a sufficient period of time to justify the investment in spectrum hoarding.

To illustrate the foregoing, assume that an anti-competitive carrier with 100 MHz of spectrum wishes to acquire a 10 MHz carrier in the same market. The incremental value of that 10 MHz to the acquiring anti-competitive carrier (who would not have any productive use for the spectrum) would be substantially less than the value assigned by the small carrier who fully utilizes the spectrum. Ultimately, this predatory gambit by the anti-competitive carrier is not likely to pay off, given the remote possibility of achieving its monopolistic goals along with the correspondingly small chance of being able to extract monopoly profits to counteract the high purchase price for the 10 MHz. These comparative opportunity cost factors make the CMRS market an unlikely target for anti-competitive warehousing efforts.[53]

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[52] *Id.*

[53] *Id.*

IV. PERPETUATION OF THE SPECTRUM CAP REGIME WOULD IMPEDE PUBLICLY BENEFICIAL INNOVATIONS, EFFICIENCIES AND ECONOMIES

Continued enforcement of the CMRS spectrum cap will impose numerous costs on consumers. First, additional spectrum beyond the 45 MHz limit may be needed in order for carriers to offer advanced wireless products and services. Second, economic analyses demonstrate that retention of the spectrum cap will hinder wireless carriers from meeting growing consumer demand for bundled voice and advanced data offerings. Third, continued application of the spectrum cap will thwart numerous potential efficiencies. Accordingly, GTE urges the Commission to remove the spectrum cap now to permit market forces to generate competition, innovation, and other public interest benefits.

A. Retention Of The CMRS Spectrum Cap Will Impede Introduction Of New Technologies

In the *Notice*, the Commission expresses its "wish to ensure that any spectrum aggregation limits promote, rather than impede, the introduction of new services and technologies."[54] Accordingly, the *Notice* seeks comment on "whether the spectrum cap serves as a barrier to firms that wish to offer additional services or to adopt advanced network technologies."[55] The *Notice* asks in particular whether the spectrum cap

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[54] *Notice,* ¶ 48.

[55] *Id.*

"poses an obstacle to the introduction of more advanced network technologies," such as 3G.[56]

GTE believes that continued application of the CMRS spectrum cap will impede the introduction of such advanced services by incumbent mobile service providers. Approximately four months ago, the Commission was given significant technical and analytical contributions from a wide range of wireless service providers and equipment manufacturers on the formation and spectrum implications of IMT-2000 (*i.e.,* 3G) services.[57] In general, the majority of commenters noted that the provision of bandwidth-intensive data and imaging technologies would be arbitrarily confined by the 45 MHz spectrum cap. As recognized by the *Notice*, most commenters in that proceeding supported either eliminating or raising the cap to facilitate introduction of 3G technologies.[58]

Simply put, more spectrum will be needed to provide the array of high-speed, high-bandwidth products and services that currently define 3G. These services range from narrowband voice applications characteristic of first- and second-generation cellular service to wideband, real-time multimedia offerings promising wireless connectivity to the World Wide Web at speeds far exceeding today's capabilities. Data rates necessary to provide the various types of data services captured under the IMT-

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[56] *Id.*

[57] *See Commission Staff Seek Comment on Spectrum Issues Related To Third Generation Wireless/IMT-2000,* 13 FCC Rcd 16221 (1998) ("*IMT-2000 Public Notice*"). Comments filed on September 30, 1998.

[58] *Notice,* n.121.

2000 umbrella range from 14 kbit/sec for simple messaging services to 384 kbit/sec for multimedia and video applications culminating with 2-10 Mbit/sec for Phase II high fidelity video and data file transfers.[59]

In response to the Commission's *IMT-2000 Public Notice*, equipment vendors generally concluded that service providers will require additional spectrum to provide the full panoply of 3G services. Motorola, for example, argues that "the current terrestrial mobile/MSS allocations will not be sufficient to support the expected demand for 3G services in the 2005-2010 time frame."[60] Motorola has further indicated that "[a]bsent the removal or relaxation of this spectrum cap, many of these [existing PCS and cellular] licensees will not be able to participate in all of the 3G services under development."[61] Northern Telecom concurs with the "need for the Commission to allocate additional spectrum for IMT-2000 services in the United States"[62] due to the "capacity constraints of [the] current mobile/MSS allocations."[63] While noting that "IMT-2000 services can be gradually introduced into the market using the spectrum currently

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[59] *See* International Telecommunication Union, Working Document (R 3.1) U.S. Revision to Document 8-1/TEMP/61-E, *Working Document Towards a Preliminary Draft New Recommendation ITU-R M. [IMT-SPEC] Spectrum Requirements for IMT-2000 (Question 39/8)* at Annex 1, pp 8-11.

[60] Comments of Motorola, Inc., Report No. IN-98-48, at 17 (filed Sept. 30, 1998), ("Motorola Comments").

[61] *Id.* at 21.

[62] Comments of Northern Telecom, Inc., Report No. IN-98-48, at 14 (filed Sept. 30, 1998).

[63] *Id.* at 13.

allocated to the cellular and PCS bands,"[64] Lucent agrees with both Motorola and Northern Telecom that as demand increases, "additional spectrum may need to be identified for IMT-2000 use."[65]

GTE agrees with these major equipment vendors that new spectrum will be necessary for 3G services, particularly in order to provide wireless Internet connectivity. GTE estimates that light Internet users will consume more than five times the network resources of typical voice users and must therefore be segregated from the voice networks.[66] While the bandwidth requirements for projected 3G technologies are still being studied, the minimum bandwidth necessary to provide wireless Internet access at the near term projected data rate of 384 kbit/sec is probably 2 x 5 MHz and at least 2 x 15 MHz for data rates exceeding 2 Mbit/sec.[67] These bandwidth requirements are in addition to the spectrum necessary for providing voice services including AMPS service as required by the Commission. Thus, the public interest calls for elimination of the CMRS spectrum cap to permit the deployment of the more advanced services of IMT-2000.

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[64] Comments of Lucent Technologies, Report No. IN-98-48, at 9 (filed Sept. 29, 1998).

[65] *Id.*

[66] *See also* Motorola Comments at 18 ("2 Mbps services – even in the office environment – are not expected to be provided in existing PCS and cellular frequency bands since more spectrum is required for providing this data rate than most operators will be willing to assign.").

[67] *See, e.g.,* Comments of Bell Mobility, Report No. IN-98-48, at 3 (filed Sept. 30, 1998).

B. Retention Of The CMRS Spectrum Cap Will Hinder Wireless Carriers From Meeting Customer Demand For Bundled and Other Wireless Services

In addition to the larger spectrum needs of IMT-2000, continued application of the CMRS spectrum cap will hinder wireless carriers' ability to respond to and meet consumer demand for bundled and other wireless services. The overall demand for wireless offerings has grown at an astronomical rate and this trend is expected to continue. As discussed below, elimination of the spectrum cap is essential to enable CMRS providers to meet evolving consumer demand for advanced data and bundled voice and data services.

Wireless carriers will require access to spectrum beyond the 45 MHz cap to meet demand for high-speed data services and bundled voice and data offerings. Industry estimates predict that there will be 12.59 million wireless data users by 2002.[68] High-speed data services consume large amounts of spectrum capacity. First, such services have a higher throughput than voice services.[69] Second, compression will be less effective than with voice services because data streams are often already compressed at their source.[70] Further, high-speed data services will likely have to be offered over a wide market area to justify the level of requisite investment and ensure customer acceptance.[71] Many analysts expect increasing demand for a convergence of voice

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[68] *Notice,* ¶ 41.

[69] *Id.*

[70] *Id.*, ¶ 47.

[71] *Id.*

and data services over wireless platforms. Indeed, there is evidence that wireless carriers and equipment manufacturers are responding to this demand.[72] The optimal scale of spectrum capacity for many wireless firms to deliver these combined offerings may exceed 45 MHz.[73]

Perhaps equally significant is that the cap will inhibit carriers, regulators, and consumers from gaining valuable information regarding the optimal functioning of the CMRS market. One of the principal functions of any market is the production and revelation of information. It is well settled that "competition is the best mechanism for stimulating research and development and for resolving uncertainty about evolving technology."[74] However, competition cannot freely function in the "capped" environment. Indeed, under the spectrum cap, the Commission may "never learn that it was preventing the optimal input selection"[75] by CMRS firms. Absent this information, the Commission will never the market distortions and inefficiencies produced by the arbitrary 45 MHz spectrum aggregation limit.

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[72] *Id.*, ¶ 42.

[73] *Id.*, ¶ 44.

[74] J. Gregory Sidak & Daniel F. Spulber, *Deregulatory Takings and the Regulatory Contract: The Competitive Transformation of Network Industries in the United States*, at 523 (Cambridge University Press 1997) (cited in Sidak/Teece Declaration, ¶ 55).

[75] Sidak/Teece Declaration, ¶ 55.

C. Maintenance Of The CMRS Spectrum Cap Will Result In Efficiency Losses

Continuation of the existing 45 MHz spectrum cap is likely to result in significant inefficiencies. Drs. Sidak and Teece identify three types of efficiency losses associated with maintaining the current cap: (1) misallocation of carriers' resources across equipment and spectrum; (2) distortions in the optimal scope and scale of affected firms; and (3) retardation of investment and innovation. Each of these efficiency losses is discussed below.

Misallocation of Resources Across Equipment and Spectrum. According to Drs. Sidak and Teece, the artificial regulatory constraint on spectrum capacity imposed by the cap induces a misallocation of resources between a carrier's use of equipment and spectrum.[76] Their economic analysis demonstrates that, given particular technological and price parameters and the spectrum cap, carriers will utilize an inefficient combination of spectrum and technological resources to provide their services. By forcing carriers to limit their CMRS holdings, the Commission's spectrum cap creates a loss in productive efficiency that is reflected in consumer prices. Under well-settled economic principles, the optimal level of spectrum is most efficiently ascertained by market forces. Artificial regulatory requirements, such as the CMRS spectrum cap, prevent carriers from being able to operate at optimal levels and thereby preclude market equilibrium.[77]

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[76] *Id.*, ¶ 46.

[77] *Id.*

Distortions in the Optimal Scope and Scale of Carriers. Continuation of the existing spectrum cap will likely foreclose significant economies of scale and scope involved in the provision of advanced mobile data services. There are at least two components to the CMRS economies of scale: (1) as discussed above, data services may require large amounts of spectrum bandwidth for technical reasons; and (2) a significant level of spectrum is critical to a carrier's ability to serve large market areas and to justify the substantial investment in the requisite equipment and upgrades necessary to provide this service.[78]

Sidak and Teece also show that there are likely to be economies of scope associated with the provision of advanced data and voice services over the same wireless network.[79] The same infrastructure (towers, backhaul transport routes, etc.) could be used to provide both services. In addition, these voice and data services could be marketed and billed jointly, thereby providing further efficiencies and potentially lowering the costs of providing traditional wireless voice service.[80] Absent removal of the cap, these economies of scale and scope cannot be realized.

Retardation of Investment and Innovation. Maintenance of the 45 MHz spectrum cap also has a chilling effect on investment and innovation.[81] Perhaps most significantly, the inefficiencies created by the cap make carriers less desirable to

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[78] *Id.*, ¶¶ 47-48.

[79] *Id.*, ¶ 48.

[80] *Id.*

[81] *Id.*, ¶ 51.

investors. Spectrum needs that cannot be met as a result of the cap may also prevent potential entrants from entering and/or investing in the CMRS marketplace pending the advent of technological changes that allow the provision of competitive and profitable new services in the restricted spectrum available.[82] Elimination of the 45 MHz cap is therefore necessary to avoid distorting carriers' incentives to invest in infrastructure development and the deployment of advanced data services.

V. TINKERING WITH THE CAP ON A MARKET-BY-MARKET BASIS IS NEITHER CONSISTENT WITH COMPETITIVE REALITIES NOR SUFFICIENT TO ACHIEVE THE COMMISSION'S GOALS

The tremendous changes in the CMRS market in the last four years and the structural attributes of that market both suggest that the spectrum cap is an unnecessary anachronism. The Commission's *Notice* offers a number of lesser alternatives to the cap. Some of these options, however, are fundamentally flawed because they maintain the problems inherent in the existing spectrum cap regime and ignore the competitive CMRS marketplace.

At several points, the *Notice* solicits comment on the elimination or retention of the CMRS spectrum cap on market-by-market basis. Specifically, the *Notice* observes that competition has come more slowly to rural markets and asks whether "the relative lack of competition in certain rural and other markets suggests that there is a continuing need for the CMRS spectrum cap in those areas."[83] At the same time, the *Notice*

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[82] *Id.*

[83] *Notice,* ¶ 46.

indicates that the spectrum cap "may affect the ability of a CMRS provider to attain certain economies of scale and scope,"[84] and seeks comment on whether the cap "may impede delivery of potentially lower-cost service to rural customers as economies of scope go unrealized."[85]

GTE appreciates the concern, expressed in the *Notice* and in Commissioner Tristani's Separate Statement, regarding the relatively slow introduction of digital service in rural markets.[86] To GTE's knowledge, however, there is no evidence that retention of the spectrum cap will in any way expedite delivery of digital offerings to rural regions. Moreover, due to the complexities of the market definitions associated with the services included in the cap, lifting the cap on a market-by-market basis may actually harm rural competition by encouraging inefficient divestiture of rural holdings in order to comply with the 45 MHz limit.

Based on the evolution of cellular service (*i.e.*, metropolitan areas were covered first, followed by rural localities) and the Commission's build out requirements, it is logical to conclude that PCS and other digital offerings will eventually be provided in a nearly ubiquitous manner. In other words, there is every reason to believe that broadband PCS service will be brought to rural areas in much the same way that cellular service was delivered to such localities. Indeed, PCS licensees paid significant

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[84] *Id.*

[85] *Id.*

[86] *See Notice,* ¶¶ 45-46; *see also Separate Statement of Commissioner Gloria Tristani*, FCC 98-308 (rel. Nov. 19, 1998).

sums of money for their spectrum, which would lie idle if they do not roll out service in due course. In short, given the questionable utility of the spectrum cap in developing rural competition and the evolving nature of rural markets, GTE believes elimination of the cap for all markets is consistent with the public interest generally and the rural public interest specifically.

VI. AN OPTIMAL APPROACH WOULD REPLACE RELIANCE ON THE SPECTRUM CAP WITH INTERIM RETENTION OF THE CELLULAR CROSS-INTEREST RESTRICTION, RELIANCE ON ANTITRUST ENFORCEMENT MECHANISMS, AND CAREFUL MONITORING OF EVOLVING SPECTRUM NEEDS

Based on the analysis set out above, GTE has demonstrated that elimination of the CMRS spectrum cap will generate significant public interest benefits, including the development of innovative products and services in response to consumer demand and the realization of market efficiencies. This approach recognizes that the highly competitive nature of the CMRS marketplace inherently precludes anti-competitive conduct. In eliminating the cap, however, there are several additional tools available, if necessary, to safeguard the CMRS marketplace: (1) interim retention of the cellular cross-interest rule; (2) the Justice Department's and other federal agencies' enforcement responsibilities; and (3) the Commission's role in monitoring CMRS spectrum needs to maximize competition and innovation.

The Cellular Cross-Interest Rule. As discussed in the *Notice*, the cellular cross-interest rule generally prohibits any person from having a direct or indirect interest in licenses for both channel blocks in a particular cellular geographic service area

("CGSA") unless such interests pose no substantial threat to competition.[87] The rule was adopted in 1991, when the two cellular licensees in each market were the predominant providers of mobile voice service.[88] The *Notice* correctly points out that the cross-interest rule was designed to "guarantee the competitive nature of the cellular industry and to foster the development of competing systems."[89]

GTE suggests that the Commission may wish to retain the cellular cross-interest rule to alleviate concerns that the two principal cellular operators in some markets might combine to deter PCS entry. As outlined in the *Notice* and in Commissioner Tristani's Separate Statement, this concern is germane primarily with regard to certain rural localities where broadband PCS or SMR service has not yet been introduced.[90] Although there is every reason to believe that additional competition from broadband PCS and digital SMR systems will eventually reach all areas of the country, in the interim, retention of the cellular cross-interest rule may be a viable means for addressing concerns about insufficient competition in certain markets.[91] Unlike the CMRS spectrum cap, the cellular cross-interest restriction only minimally constrains carriers' ability to meet evolving consumer demand because the cross-interest rule is a

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[87] *See Notice,* ¶ 79. *See also* 47 C.F.R. § 22.942(a).

[88] *Notice,* ¶ 80.

[89] *Id.* (internal quotes omitted).

[90] *See Notice,* ¶ 45; *see also* Separate Statement of Commissioner Gloria Tristani, FCC 98-308 (rel. Nov. 19, 1998).

[91] GTE urges the Commission to assess whether sunset of the cellular cross-interest rule may be appropriate as digital PCS and SMR coverage extends to rural areas.

far less invasive restriction on the ability to obtain an optimally efficient amount of spectrum. Indeed, retention of the cellular cross-interest rule without the CMRS spectrum cap will ensure two well established competitors in every market, while allowing all carriers to obtain a sufficient amount of spectrum to provide innovative new services in an economically efficient manner.

Antitrust Enforcement. The antitrust enforcement authority of the Justice Department also protects the CMRS market from anti-competitive commercial conduct or combinations. Even if carriers were somehow able to achieve the improbable feat of manipulating the highly competitive wireless marketplace to introduce predatory pricing, driving their competitors from the market, and then implementing monopolistic rates, those carriers would still risk substantial penalties under existing antitrust enforcement mechanisms for their nefarious conduct. These mechanisms have as their primary purpose to "protect interbrand competition"[92] and include the Sherman and Clayton Acts.[93] Under the these statutory provisions, substantial penalties are available against anti-competitive carriers. These statutory provisions are supplemented by the Justice Department's power to prosecute collusion criminally, the Federal Trade Commission's regulatory oversight,[94] and the availability of private causes of action.[95] Private causes

[92] *See State Oil Co. v. Khan*, 118 S. Ct. 275, 282 (1997).

[93] 15 U.S.C. § 1,2 et seq.

[94] 15 U.S.C. § 45 et seq.

[95] 15 U.S.C. § 15.

of action would be particularly effective given the highly competitive nature of the marketplace and the ability of litigants to "recover threefold the damages" sustained.[96]

Government review of the CMRS market may also be prompted by Hart-Scott-Rodino examination of mergers and acquisitions that involve the accumulation of spectrum.[97] Indeed, the Justice Department has not been reluctant to examine carefully telecommunications transactions and take appropriate steps to protect consumers from anti-competitive conduct. In short, the Commission can be confident that even if the checks on market power inherent in the wireless marketplace were to disappear – which they will not – the myriad of other continuing safeguards available will ensure that wireless consumers will not face exploitative pricing.

Monitor the Marketplace To Ascertain Future Spectrum Allocation Needs. Finally, the Commission in its spectrum management function should continue monitoring the CMRS marketplace to determine whether additional spectrum is needed for advanced service packages. As mentioned earlier, the Commission recently released a Public Notice seeking comment on a variety of issues associated with the long term spectrum requirements for future 3G mobile wireless systems.[98] Undoubtedly, technological innovation beyond 3G will spur the introduction of additional new offerings unimaginable today. Although repeal of the spectrum cap will enable the

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[96] 15 U.S.C. § 15 (a). Injunctive relief is also available to prevent anti-competitive conduct.

[97] 15 U.S.C. § 15 (a).

[98] *See IMT-2000 Public Notice.*

market to perform its information gathering functions more effectively, it is also essential that the Commission monitor the marketplace to ensure that regulatory constraints do not inhibit the effective development and provision of future advanced wireless applications. Monitoring of the marketplace will also allow the Commission to respond to the need for new spectrum allocations should the necessary scale for CMRS providers exceed the existing allocation structure.

VII. CONCLUSION

For the foregoing reasons, GTE submits that the time has come for the Commission to eliminate the CMRS spectrum cap in its entirety. The explosive growth in the CMRS marketplace since adoption of the cap renders this artificial regulatory constraint an anachronism. The robust competition in the CMRS marketplace will guard against anti-competitive conduct and collusion in a post-spectrum cap world.

GTE also has shown that the spectrum cap may actually cause harm to the public interest by stunting the continued growth of, and innovation in, the CMRS marketplace. The range of future services such as 3G and bundled voice and data services is continually growing and changing. Accordingly, continued reliance on the spectrum cap will likely limit gains in expected efficiencies and economies by causing a misallocation of resources and restricting, rather that enhancing, further technological development.

Finally, GTE suggests that the Commission consider retaining the cellular cross-interest rule as a safeguard in response to any lingering concerns about excessive consolidation and lack of competition in certain markets. Retention of the cross-interest rule, reliance on existing federal antitrust jurisdiction, and continued monitoring of the market's spectrum needs will provide a multi-level safety net against anti-competitive conduct and ensure effective delivery of advanced CMRS offerings.

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